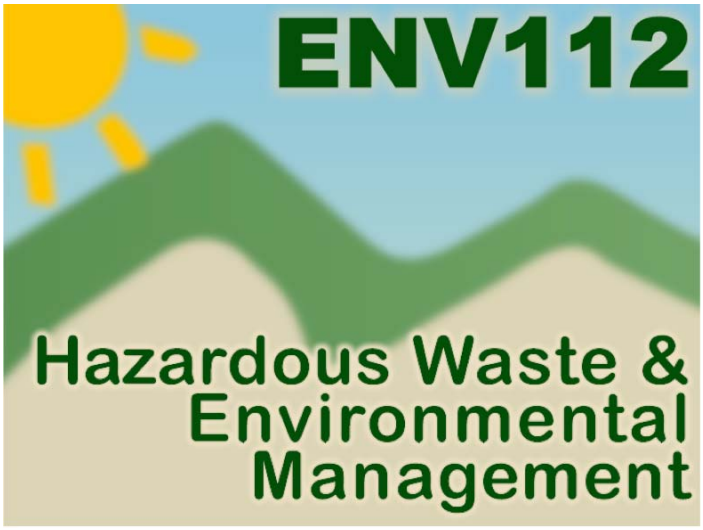


Check Web Fileshare to make sure you have the most current version of ENV112 (https://wfsprod01.sandia.gov/groups/srn-uscitizens/documents/document/wfs219317.pdf).

Table of Contents

Introduction

This training applies to all Members of the Workforce at SNL/NM who generate, treat, store, or request disposal of material identified as hazardous waste. ENV112 is required annually. This training takes approximately 1 hour to complete.

Follow SNL/NM Member of the Workforce **(MOW)** as he explores hazardous waste management and environmental protection at SNL/NM with Environmental Compliance Coordinators **(ECC)**.

MOW: What's the purpose of this course?

ECC: The purpose of this course is to familiarize you with:

- Basic environmental protection principles.
- Requirements for hazardous waste management, as stated in the SNL Corporate Procedure: ESH100.2 ENV.22 *Manage Hazardous Waste at SNL/NM*. It is recommended that you read this procedure upon completion of this training.
- Resources for guidance, consultation, and assistance.
- The need to consult with the ECC prior to generating hazardous waste to determine best management practices.

If you have questions or don't understand a particular subject area, feel free to contact your ECC.

Course Credit Instructions

The printable version of the on-line training, Hazardous Waste & Environmental Management training (ENV112), is available in pdf format in Web FileShare for those people who require the training, but do not have access to the course on line.

Instructions to the Student:

- Read through the course material and answer the end-of-module questions.
- Take the Final Exam, using the answer sheet associated with the exam.
- Forward the answer sheet to Bernice Lucero, Course Manager, by fax: 505-844-2748 or Mail Stop 0653 for scoring and course completion credit.
- The Course Manager will grade the exam and enter the completion into Sandia's Corporate Learning Management System.
- You must pass the exam with a score of 80% or better to receive credit for the course.

Course Objectives

After successful completion of this training, each individual should be able to:

- Define "waste".
- Identify hazardous waste.
- Define "hazardous waste generator".
- Identify available resources.
- List the responsibilities of a hazardous waste generator.
- Identify the requirements pertaining to waste generation at SNL.
- Identify characteristics of an appropriate container.
- List guidelines for choosing the right container.
- List the elements of proper labeling.
- Identify common waste streams at SNL.
- Identify Satellite Accumulation Point (SAP) management responsibilities.
- Identify responsibilities associated with 90-day Accumulation Areas.
- List the steps to have hazardous waste picked up.
- Complete the necessary forms to have hazardous waste picked up.
- Identify the elements of the SNL/NM Environmental Management System (EMS) as part of the Integrated Safety Management System (ISMS).
- List the five core ISMS work process functions.
- Identify appropriate application of SNL/NM Recycle Program.
- Recognize the function of the Pollution Prevention (P2) Program.

Resources

Corporate Business Rules

- ESH100 Environment, Safety and Health
  https://my.sandia.gov/authsec/portal/cps/environmentalSafetyHealth/policy?section=all
- Corporate Procedure: ESH100.2.ENV.22
  https://my.sandia.gov/authsec/portal/cps/environmentalSafetyHealth/policy/process/procedure?procedure=ESH100.2.ENV.22&section=all
- CPR 400.1.2 ISMS
  http://www-irn.sandia.gov/corpdata/eshisms/eh000.htm

SNL Web Sites

- SNL/NM Chemical Information System (CIS)
  https://webprod.sandia.gov/CIS/restricted/svRegSearchMenu?hdNext=inventory
- Environmental Compliance Coordinators Program
  http://ecc.sandia.gov/
- Pollution Prevention (P2) Group
  http://info.sandia.gov/esh/p2/
- Hazardous Waste Management & Laboratory Services Department
  http://www-irn.sandia.gov/esh/depts/haz_solid_waste/
- Chemical Exchange Program (CEP)
  http://info.sandia.gov/esh/chem_exchange/
- Solid Waste Transfer Facility
  http://info.sandia.gov/esh/solidwaste_prgrm/
- Hazardous Waste Management Facility
  http://info.sandia.gov/esh/hwmf_prgrm/
- ISMS
  http://info.sandia.gov/esh/isms/
- NEPA
  http://info.sandia.gov/esh/nepa/
- Waste Management Lessons Learned
  https://info.sandia.gov/LessonsLearned/

Manuals

- ESH100.2.ENV.22, Manage Hazardous Waste at SNL/NM
  https://my.sandia.gov/authsec/portal/cps/environmentalSafetyHealth/policy/process/procedure?procedure=ESH100.2.ENV.22

Contacts

- Environmental Compliance Coordinators(ECC)
  http://ecc.sandia.gov/
- Division ES&H Coordinators
  http://info.sandia.gov/esh/liwg/Names_Numbers/diveshcoord.htm
- Center ES&H Coordinators
  http://info.sandia.gov/esh/liwg/Names_Numbers/ctrcoord.htm

Module 1 - Identifying Hazardous Waste

After successful completion of this module, you will be able to:

- Define *waste*.
- Identify hazardous waste.
- Define *hazardous waste generator*.
- Identify available resources.

Member of the Workforce (MOW): So, what is hazardous waste?

Environmental Compliance Coordinator (ECC): Good Question! Why don't we look at the definition of hazardous waste? But first, let's look at the definition of waste...

Waste

ECC: **A material that is still in use or intended for legitimate use is not waste.**

Otherwise…

A material **is** considered waste if it meets **any** of the following criteria:

- It can no longer be used for its **intended** purpose.
- It is **declared** waste.
- It is discarded, abandoned, or there is an **element of discard or abandonment** (even if it is still useable).

Hazardous Waste
Regard as hazardous waste **all waste chemicals**, including contained gases, liquids, and solids that are **toxic, ignitable, corrosive**, and/or **reactive**, unless a waste profile has been performed to determine that they are not hazardous.
Examples of hazardous waste include, but are not limited to the following:

- solvents
- acids
- bases
- oxidizers
- flammable or combustible substances
- commercial cleaning products
- paints
- explosives, propellants, pyrotechnics and

- any liquid not specifically allowed in landfills, storm sewers, or sanitary sewers

Regard as hazardous waste the following waste metals and waste contaminated with or containing these metals unless a waste profile or sampling has been performed to determine that they are not hazardous:

- arsenic
- barium
- cadmium
- chromium
- lead
- mercury
- selenium
- silver

Examples of metal-containing hazardous waste include, but are not limited to, the following:

- lithium ion batteries
- nickel/cadmium batteries
- cadmium-plated nuts and bolts
- lead solder
- incandescent light bulbs
- mercury thermostats
- mercury vapor lamps
- film negatives, photographic paper, or spent film processing fluids containing silver

Regard as hazardous waste any waste items that are contaminated with or contain any of the previously mentioned chemicals or metals, unless a waste profile has been performed to determine that they are not.

Examples include, but are not limited to, the following:

- wipes
- swabs
- debris
- hardware
- equipment
- containers that are not empty in accordance with Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM

Optional Information: Empty Container

All waste has been removed that can be removed by common practice for that type of container **and** (not **or**)
no more than 3% by weight of the total capacity remains in the container.
ECC: Containers that met the definition of empty **and**:

- √ Did not contain acutely hazardous waste
- √ Do not have a capacity greater than five gallons
- √ Have less than one inch of residue remaining for any container up to 110 gallons in size.

may be disposed of in the regular trash at SNL/NM.

If the waste is an unused commercial chemical product (for example off-specification or expired), include that information when disposing of it (see your ECC for assistance).

Optional Information: Example of Listed Hazardous Waste

D List – Characteristic Hazardous Wastes
- Characteristics of ignitability, corrosivity, reactivity, toxicity

F List – Non-Specific Sources
- e.g., spent solvents

P List – Acute Hazardous Wastes
- e.g., methyl isocyanate

U List – Unused & Off-Spec Commercial Products
- e.g., unused vinyl chloride

Acute Hazardous Waste

If the waste is an acute hazardous waste, pay close attention to its unique waste management requirements (for example volume limits). See Sandia's Chemical Information System (CIS) P List Waste – Instructions for use.

ECC: Acute hazardous waste is very toxic and can be fatal to humans in small amounts. Waste storage volume limits for acute hazardous wastes are discussed in Module 3.

Examples include:

- arsenic oxide
- methyl isocyanate
- parathion
- sodium cyanide
- thallium oxide

Engineered Unbound Nanoscale Particles

Waste streams bearing engineered unbound nanoscale particles cannot be thrown into the regular trash. Such waste streams need to be characterized as either hazardous or non-hazardous for their chemical properties according to Chapter 19A of the ES&H Manual. In either case however, a waste label for unbound nanoscale particles must be applied to the container, and the waste must be submitted to the Hazardous Waste Management Facility (HWMF) for disposal. See Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM for more details.

Hazardous Waste Generator

Any member of the workforce or visitor who generates, manages, stores, or requests disposal of a hazardous waste is a generator and is required to take ENV112 annually. Waste generators and their organizations are responsible for the hazardous waste they generate and any byproducts (such as waste spill cleanup material) until the waste is removed from their waste management area.

ECC: At SNL/NM, you are a Hazardous Waste Generator if your wastes must be managed in accordance with the requirements of Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM.

MOW: Wait! What if I'm not a chemist, how do I tell if **my** waste is hazardous?

ECC: Well . . . there are some resources available to you for just that very thing:

Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM gives guidance for making a determination about the hazardous nature of your wastes.

Manufacturers of chemicals are required to provide Material Safety Data Sheets (MSDS) on the chemicals they produce. An MSDS may provide you with the information that you need to determine if the chemical has hazardous characteristics. Remember that a waste profile needs to be developed to determine that a chemical waste is not a hazardous waste. Your ECC can help with a profile.

There are some other resources available to you.

The SNL/NM Chemical Information System (CIS) tracks chemicals or chemical products from purchase to disposal. The CIS can help you locate an MSDS for your chemical waste.

You can also contact your ECC.

ECC: Do you know how to contact your ECC? Let's look in the EPR Query!

Each Division at SNL/NM has an ECC, as part of the ES&H Customer Support Team, to provide environmental support and guidance.

Also, Hazardous Waste Management Facility (HWMF) representatives have training and experience to enable them to make the final declaration of waste characterization, based on regulations and information from waste generators.

Review

ECC: Let's review what you've learned in this module . . .

- If you're using or testing something, it is not a waste.
- Waste chemicals are considered hazardous waste at SNL/NM unless they have been profiled out of the requirements of Section 19A of the ES&H Manual.
- Some waste metals are regulated and considered to be hazardous wastes.
- Liquids that are not allowed into the sanitary sewer, storm sewer or landfill are managed as hazardous waste.

ECC: Give your ECC a call . . . they will be happy to assist you with all your waste and environmental management concerns.

Identifying Hazardous Waste

You need to answer the questions for this module before you continue.

1. **Which of the following is a resource that will help you in identifying whether your waste item should be regarded as a hazardous waste or not:**
    a) Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM.
    b) Material Safety Data Sheets.
    c) Your Environmental Compliance Coordinator (ECC).
    d) All of the above.
2. **Hazardous waste at SNL/NM consists of all waste chemicals, including contained gases, liquids and solids that are toxic, ignitable, corrosive, and/or reactive as well as certain metals and items contaminated with or containing any of these materials (that have not been profiled out of ESH100.2.ENV.22).**
    a) True
    b) False

Module 1 Answer Key:

1. d.
2. a.

Module 2 - Responsibilities as a Hazardous Waste Generator

After successful completion of this module, you will be able to:

- List the responsibilities of a Hazardous Waste Generator.
- Identify the requirements pertaining to waste generation at SNL/NM.

MOW: OK, as a hazardous waste generator, you say I have certain responsibilities. What are they?

ECC: Well, as a hazardous waste generator, you are responsible for knowing the requirements to properly manage any hazardous waste(s) you may generate.

So, let's review your responsibilities as a hazardous waste generator at SNL/NM . . .

Waste Generator Responsibilities
Per Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM

- **Be trained** for managing your wastes (i.e., completing this course).
- **Establish** a hazardous waste storage location, if needed.
- **Identify and manage** the hazardous waste that you generate.
- **Identify and work with** your ECC for any wastes that have no disposal path (before it is generated).
- **Evaluate methods and take action**, as appropriate, to reduce waste at the source and document these efforts and/or results.

Optional Information: No Disposal Path

MOW: Whoa . . . "wastes with no disposal path". What does that mean? How will I know that?

ECC: Some of the work at SNL/NM may cause you to generate certain types of wastes that have no means for us to dispose of them at the present time. You need special DOE approval prior to generating these types of wastes.

Some examples of the types of wastes that have no disposal path: some radioactive contaminated wastes, certain classified mixed wastes, or high mercury contaminated materials.

- **Assume** that chemical waste is hazardous waste, unless the waste profile tool has been used to determine otherwise.

Optional Information: Waste Profile

MOW: Wait, what's a waste profile?

ECC: A waste profile is a tool used by the ECCs in cooperation with hazardous waste generators to determine if a waste can be managed by alternative disposal methods, such as through the sanitary sewer system or as solid waste. This may allow reductions in handling requirements, waste volume, and cost.

If you would like to have a waste profile performed, contact your ECC Representative for assistance prior to generating the waste.

If waste has been generated, and a waste profile is being completed, then:

- **Place** wastes in containers that are appropriate for the waste.
- **Separate** incompatible wastes.
- **Label** containers with a SNL/NM hazardous waste label.
- **Ensure** containers remain closed at all times, unless adding or removing waste.
- In Satellite Accumulation Point (SAP) waste storage areas, **manage** hazardous waste near the point of generation, keeping waste under your control.
- **Request** disposal of hazardous wastes by completing a Waste Description & Disposal Request (WDDR) form.
- **Describe** your waste management activities to an auditor if requested.

Optional Information: Audit Etiquette

As a waste generator, your storage area may be visited by an auditor from the New Mexico Environment Department, DOE, or other outside agency.

Your Responsibilities During An Audit/Inspection:

- Ensure that the requirements of the Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM, are being met.
- Check your areas for housekeeping.
- Act as host and present an open cooperative attitude.
- Be honest and knowledgeable.
- Only answer questions that are asked.
- Don't volunteer other information.
- If you don't know an answer, offer to find out or refer to someone who does.
- Don't argue; additional information can be given to the auditor escort at a later time.
- Don't be defensive or take it personally.
- Let the auditor look over a document in silence.
- Realize that interpretations are subjective.
- Findings are not necessarily conclusions.

Waste Identification

Waste generators shall identify their waste to determine the applicable management and disposal requirements.

Determine if the subject material meets the definition of *waste.*

Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM provides guidance on making a waste determination.

ECC: Remember, at SNL/NM, assume that a waste is hazardous waste unless a waste profile tool or sampling has been used to determine otherwise. Contact your ECC for help.

Also, remember that Hazardous Waste Management Facility (HWMF) representatives have training and experience to enable them to make the final declaration of waste characterization, based on regulations and information from waste generators.

MOW: Well, it looks like I'm probably a hazardous waste generator. Where do I go from here?

ECC: Very well. First, there are some specific regulations and requirements that govern how you manage a hazardous waste. Let's take a quick look at them . . .

Regulations & Requirements

Federal
Environmental Compliance Coordinators Agency (EPA)

- Directs the Resource Conservation and Recovery Act (RCRA[1])

State
New Mexico Environmental Department (NMED)

- Authorized to manage RCRA and State regulations

Agency
Department of Energy (DOE)

- DOE Orders and Directives included in Sandia's Contract

Sandia National Laboratories
Corporate Business Rules and Requirements

- ES&H Policy

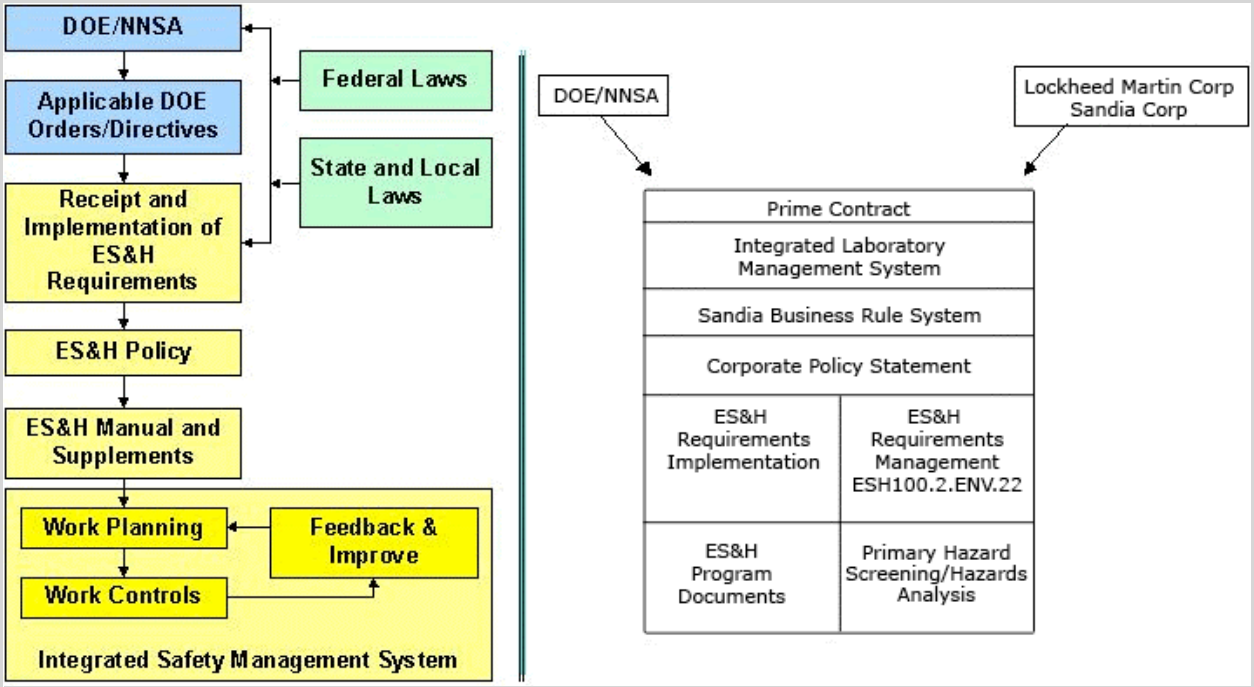
Optional Information: RCRA

The Resource Conservation and Recovery Act (RCRA) is a federal program to manage both hazardous and nonhazardous wastes. RCRA is designed to:

- Protect human health and the environment
- Reduce/eliminate the generation of hazardous wastes
- Conserve energy and natural resources

The Environmental Protection Agency (EPA) designed RCRA to manage hazardous waste from "Cradle-to-Grave". This includes the generation, transportation, treatment, storage, and disposal of hazardous wastes.

Optional Information: Flow of Requirements



MOW: Wow, it looks like there are a lot of requirements to remember. Is there a condensed guidance available?

ECC: As a matter of fact there is. Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM describes the hazardous waste management requirements that are applicable to the SNL/NM workforce. This is a valuable resource available to you.

At SNL/NM, Hazardous Waste Management guidance is provided in the SNL Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM. It incorporates all the applicable elements from Federal, State, DOE and Corporate regulations and requirements.

Waste Prohibitions

ECC: Let's go over a few things that you are not allowed to do unless specific approval is granted by your Environmental Compliance Coordinators. Hazardous waste generators SHALL NOT do any of the following with material identified as hazardous waste:

- Treat, dilute, or volume reduce the material. For example, treating a waste to reduce the hazard associated with it.
- Discard the material into trash cans, dumpsters or glass boxes per ESH100.2.ENV.22.
- Allow the material to enter sanitary waste lines or storm sewers via sinks, toilets, etc.
- Bury the material or release it to the ground, either directly or indirectly.
- Allow the material to evaporate or disperse into the atmosphere.
- Remove the material from SNL/NM-controlled premises or Kirtland Air Force Base.
- Bring any material identified as hazardous waste onto SNL/NM-controlled premises.

Potential Consequences of Non-Compliance

ECC: By the way, here are just a few of the consequences we could face by non-compliance with hazardous waste management requirements:

- potentially dangerous or life-threatening situations
- contaminated earth, air & water
- health or safety concerns
- fines (thousands $ to several thousands $ plus)
- corporate & individual accountability
- embarrassment and
- disciplinary action

Environmental Compliance Coordinators
Contact your ECC for clarification and additional guidance, for such aspects as:

- hazardous/chemical waste
- air & water pollution/wastes
- radioactive/ mixed waste
- explosive waste
- non-regulated waste
- medical/bio waste
- waste identification
- waste minimization through pollution prevention activities

- National Environmental Policy Act (NEPA) support
- The SNL/NM Chemical Exchange Program (CEP)

Responsibilities as a Hazardous Waste Generator

You need to answer the questions for this module before you continue.

1. **As a hazardous waste generator, it is your responsibility to ensure that:**

   - **Your hazardous wastes are placed in appropriate containers, and;**
   - **The containers are kept closed at all times unless adding or removing waste, and;**
   - **The containers are properly labeled;**
   - **The hazardous waste is managed in a waste storage area at or near the point of generation (usually in the same room) and under your control.**

   a) True
   b) False

2. **Which Document at SNL/NM incorporates all the applicable elements from Federal, State, DOE and Corporate regulations and requirements for the management of hazardous waste by waste generators?**

   a) SNL/NM ES&H Policy, Corporate Policy Statement Requirement No: CPSR400.1.
   b) b) SNL Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM
   c) SNL/NM Developing ES&H Procedures (GN470098), Corporate Process Requirement No: CPR400.1.1.1.
   d) None of the above.

Module 2 Answer Key:

1. a.
2. b.

Module 3 – Container Management

After successful completion of this module, you will be able to:

- Identify characteristics of an appropriate container.
- List guidelines for choosing the right container.
- List the elements of proper labeling.

Container Management Requirements

Store wastes in containers that are appropriate for the waste.

An appropriate container is:

- chemically compatible with the waste (e.g., don't place strong acids/bases in metal containers)
- in good condition, leak free, without dents, creases, bulges, or corrosion that would compromise the integrity of the container
- **closed**, except to actively add or remove waste. A closed container will not allow any waste to escape into the environment
- free of external chemical contamination (i.e., all waste shall be inside its container)

Separate incompatible wastes

- use distinct containers (i.e., don't place incompatible wastes in the same container)
- physically segregate containers

Label containers with a Hazardous Waste label

- contents should be described
- owner should be identified (including name, organization, and phone number in spaces provided)
- also label empty containers that are to be picked up (i.e., containers that are not "RCRA empty" or those containers with a capacity of greater than 5 gallons)
- after submitting Waste Description and Disposal Request (WDDR), put Disposal Request (DR) number and line item number on label

There are also labels which may be used for some materials for recycle, used oil, lead for reuse, and "Start Date" labels for <90 Day Accumulation Areas. The hazardous waste labels, and the other labels can be viewed in the glossary provided at the end of this document.

Containers without proper labels . . .

- cause identification problems
- may become unidentified or unknown waste
  - unknown waste must be identified before disposal can occur
- cannot be picked up for disposal
- are not compliant with Federal regulation and Chapter 19A of the ES&H Manual

ECC: If unknown waste is found, contact your ECC for instructions and/or assistance with the identification process.

Choosing the Proper Container for Your Waste

ECC: Here are some guidelines to help you choose the right container for your waste.

- Put liquid waste in rigid closed-top containers (bottles, jugs, or closed head drums).
- Non-liquid waste may be placed in non-rigid containers (plastic bags or boxes, as long as the container requirements are met).
- Don't put liquid and solid waste in the same primary container.
- Use secondary containment if a leak or spill would enter the environment, such as through sewers, drains, or for waste managed at an outside Satellite Accumulation Point (SAP).
- Exercise caution when using Ziploc and similar bags as containers. If they develop an internal pressure, they may inadvertently open.

ECC: Contact your ECC for guidance on where to purchase containers.

Labeling

ECC: A hazardous waste label must be applied as soon as one of the following occurs:

- waste is added to the container
- chemical is no longer needed or has expired
- item is deemed to be a waste (such as nickel/cadmium battery)

The hazardous waste label must be legible and contain:

- WDDR number and line item number (when WDDR is submitted)
- Content description (process description including chemical names)
- Generator's name, organization, and telephone numbers

Note: At SAPs, dates are only needed when volume limits have been exceeded. When limit is exceeded, immediately apply a date to the container noting this date. (Time limits will be discussed later in this course.)

Closed Container

Ensure containers remain closed at all times, unless adding or removing waste.

- Figure A is an illustration of an open head steel drum. Ensure cover is in place and the bolted ring is tight and extends over both the top chime and cover.
- Figure B is an illustration of a closed head or tight head steel drum. Ensure both fittings (or bungs) are tightly secured.

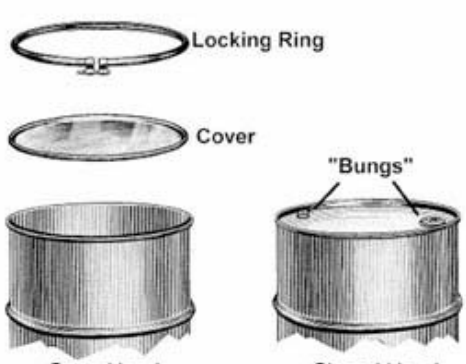


Figure A **Figure B**

Closure is also important where “process lines” or drain lines (tubing) come off of equipment and drain into hazardous waste containers.

If tubing goes through an opening in the cap of the container, the container is deemed CLOSED only when:

- The machine power switch is turned off, AND
- All vent holes in the hazardous waste container are sealed or capped off.

In other words, the drain lines **must be disconnected and the container capped**.

Another approach is to use a device, such as a specially designed funnel or a check valve, to insure the hazardous waste container is closed when waste is not actively being discharged through the waste lines into the container. The use of these devices and contact information for purchase can be found at the following link: http://www-irn.sandia.gov/esh/ecc/wastefunnel.html

Example of a specially designed funnel which is considered “closed” even when the machine is not in operation.

Empty Container

All waste has been removed that can be removed by common practice for that type of container

and (not ***or***)

no more than 3% by weight of the total capacity remains in the container.

ECC: Containers that meet the definition of empty ***and***:

- Did not contain acutely hazardous waste (See Sandia's Chemical Information System (CIS) P List Waste)
- Do not have a capacity greater than five gallons

may be disposed of in the regular trash at SNL/NM.

Containers with a capacity of greater than 5 gallons should be labeled with the words "Empty Container" and submitted for disposal on a WDDR.

Best Management Practices for Waste Generators

A number of best management practices have been noted to increase effectiveness at satellite accumulation points and to prevent noncompliances. Selected examples include:

- Use of **self-closing containers** to prevent open container violations. These include step cans with self closing lids, containers with spring loaded closures (such as non-metallic self close corrosive safety containers) and galvanized steel safety cans for flammables.
- Use of **waste addition logs** in situations where several generators are adding incremental amounts of similar, compatible -- but not identical -- waste to a common container. The log, SF 2001-WAL, Waste Addition Log (Word file [http://www-irn.sandia.gov/corpdata/corpforms/2001wal.dot]/Acrobat file [http://www-irn.sandia.gov/corpdata/corpforms/2001wal.pdf]), tracks which wastes have been added to the container for accurate later characterization.
- Including **special handling protocols** for the safe management of hazardous waste **in Technical Work Documents** (http://www-irn.sandia.gov/corpdata/esh-manuals/mn471001/c21.htm) for the area.

Container Management

You need to answer the questions for this module before you continue.

1. **When must you apply a hazardous waste label to your hazardous waste container?**
    a) As soon as you get around to it.
    b) Tomorrow, after you get that priority your supervisor just handed you out of the way.
    c) Just before the pickup crew comes to pick up your hazardous waste.
    d) As soon as you place the waste into the container.
2. **If you have a liquid waste, it is okay to place it in a plastic bag for disposal.**

    a) True
    b) False

3. **The selection of an appropriate container for your hazardous waste is a container that is:**

    - **chemically compatible with the waste;**
    - **in good condition, leak free, without dents, creases, bulges, or corrosion that would compromise the integrity of the container;**
    - **closed, except to actively add or remove waste; and**
    - **free of external chemical contamination.**

    a) True
    b) False

Module 3 Answer Key:

1. d.
2. b.
3. a.

Module 4 – Common Waste Streams

After successful completion of this module, you will be able to:

- Identify common waste streams at SNL/NM.

Types of Hazardous Waste Streams At SNL/NM

- solvents, corrosives, oxidizers
- flammable/combustible chemicals
- explosives, pyrotechnics, propellants
- water-reactive chemicals and metals
- liquids that are specifically NOT allowed in landfills, storm sewers or sanitary sewers
- common waste streams

MOW: What types of wastes are considered common waste streams at SNL/NM?

ECC: Glad you asked. Common waste streams covered by Section 19A of the ES&H Manual include such things as:

- contaminated rags & wipes
- aerosol cans
- batteries
- explosive contaminated items
- light bulbs (fluorescent and incandescent)
- Polaroid film
- solder & solder scrap
- toner cartridges
- used oil

MOW: You said aerosol cans are one of the common waste streams at SNL/NM. I have a lot of products in aerosol cans. If I know that an aerosol can is empty, may I throw it in the regular trash?

ECC: While it is true that Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM allows for aerosol cans to be discarded in the regular trash if they are **completely empty of product and propellant**, this is difficult to ensure. Your best bet is to manage it as a hazardous waste if you are unsure.

MOW: Is it ok to puncture an aerosol can to make sure it is empty?

ECC: No, never puncture an aerosol can! This can be a dangerous practice and is not allowed at SNL/NM. It is best practice to completely use the product in the aerosol can.

You must **never intentionally spray** the contents for the purpose of emptying an aerosol container. If you are in doubt about whether it still contains product or propellant, it is best to manage it as a hazardous waste.

Common Waste Streams

ECC: There are other items on the list of *Common Waste Streams* in Section 19A that we should mention:

- **Batteries** – carbon-zinc and alkaline batteries size AAA through D & 9-volt can be placed in the trash. All other battery sizes and types must be managed as hazardous waste with the proper labeling and terminals taped. Some of the batteries are sent to recycle facilities from the Hazardous Waste Management Facility (HWMF). Rechargeable batteries, irregardless of their size, are hazardous waste.
- **Solvent contaminated wipes/swabs** – used with specific solvents and used until dry can be thrown in the trash. You are not allowed to leave the wipes exposed simply for the purpose of "air-drying" them. Other contaminated wipes and rags may be able to be profiled to exclude them from regulation. Ask your ECC for guidance in your laboratory.
- **Light Tubes and Bulbs** (Fluorescent and Incandescent): 4 feet and 8 feet fluorescent light tubes (intact or broken) have been profiled and determined not to be hazardous waste. The tubes shall be put into a container and labeled with the words "fluorescent light tubes for recycle" and submitted on a WDDR according to the requirements in the "Disposal Request" section of Chapter 19A.

Circular, U-shaped waste fluorescent and incandescent light bulbs shall be managed as hazardous waste. Do not place light bulbs/fluorescent tubes in glass box receptacles.

- **Solder** (lead, tin, silver, etc.): scraps and pieces may be managed as a recyclable material instead of hazardous waste and must be placed in a container with the words "Scrap Solder for Recycling", or with a "Material for Recycle" label.
- **Used or waste oil**: Used oil to be recycled through the Hazardous Waste Management Facility if it meets specific criteria. If these criteria are met, a "Used Oil" label may be applied. If the used oil fails to meet any of the criteria, then it shall be labeled and managed as hazardous waste. Contact your Division ES&H Team or the used oil program coordinator to request additional information.

Optional Information: Requirements to recycle and use the "Used Oil" label

Used oil to be recycled shall:

- Be free of radioactive contamination.
- Contain less than 2 ppm polychlorinated biphenyls (PCBs).
- Not be mixed with a hazardous waste or hazardous constituent (e.g., animal and vegetable oil, antifreeze, brake fluid, kerosene, petroleum distillates, or solvents).
  Note: Used oil that is considered to exhibit a hazardous characteristic by its own nature (e.g., ignitability) and that has not been mixed with a hazardous waste may be recycled.
- Not exceed 1,000 ppm total halogens unless the generator has acceptable knowledge indicating the halogens are not due to solvents or other hazardous waste. If the oil contains halogens from refrigeration units or metalworking fluids, contact the appropriate Division ES&H Team's ECC for assistance.
- Meet all acceptance criteria imposed by the used oil recycler or HWMF.

MOW: What about sampling? Do I need to have samples taken and obtain an analysis of the waste?

ECC: Sampling may not be necessary. You can make some type of determination by how the chemical or product is used. This is called "knowledge of process" (KOP) or process knowledge. KOP includes not only the materials involved, but the process that generated the waste.

Also, many commercially available chemical products may indicate their hazardous nature on the label.

If your waste does need sampling, your ECC can help you arrange for it to ensure adequate data.

Module 4 Question:

1. **According to ESH100.2.ENV.22 it is permissible to dispose of an <u>empty</u> aerosol can in the trash. You have a can of enamel spray paint that you want to dispose of, but it is not quite empty. You decide to touch up the paint on a piece of equipment in your shop. You use the spray paint until it runs out of paint (used for its intended purpose), but there is still some propellant left. Based on this scenario, you can dispose of this can in the trash.**

    a) True
    b) False

Module 4 Answer Key:

1. b.

Module 5 – Managing Hazardous Waste Areas (90-Day Accumulation Area)

After successful completion of this module, you will be able to:

- Identify Satellite Accumulation Point (SAP) Management requirements.
- Identify responsibilities associated with 90-day Accumulation Areas.

MOW: You mentioned something about establishing hazardous waste management areas?

ECC: Yes! You can manage your waste(s) at either a SAP or 90-Day Accumulation Area.

A SAP has the most basic management requirements and the majority of hazardous waste management areas at SNL/NM are SAPs.

A 90-day Accumulation Area requires more stringent management efforts.

Your ECC can help you decide which is best for your situation. Let's look at the description of a SAP . . .

Satellite Accumulation Point (SAP)

A waste storage area established at or near the point of generation:

- to manage hazardous waste for an indefinite period of time
- at volumes at or below 55 gallons, and at or below one quart for acute hazardous waste (includes solid, liquid and gas).

Below is additional information on SAPs.

- Every location that hazardous waste is stored, at a minimum, is a SAP.
- Remember, there is no time limit for waste storage at a SAP, but you must keep the volume at or below 55 gallons of hazardous waste (or 1 quart of acute hazardous waste).
- If the waste volume exceeds 55 gallons (or 1 quart of **acute** hazardous waste) the excess waste must be removed in three (3) **calendar** days. Also, you must not move wastes between SAPs!
- The majority of hazardous wastes at SNL/NM are managed at a SAP.

ECC: Here are the requirements for managing hazardous wastes at a SAP.

SAP Management Requirements

- Waste is under the control of the generator.
- SAP is located at or near the point of generation.
- SAP is located at least 20 feet from a security fence (SNL/NM Security requirement).
- Hazardous waste accumulation at a SAP is limited to a total volume of 55 gallons.
- Acute hazardous waste accumulated at a SAP is limited to a total volume of one quart.

ECC: Don't forget to label every container with a Hazardous Waste Label as soon as hazardous waste is placed in it **and** to keep all containers closed except when actively adding or removing waste.

- Volume limits apply to all forms of hazardous waste – liquid, solid and gas.
- Hazardous waste in excess of the 55 gallons of hazardous waste limit or the one quart acute hazardous waste limit must be marked with the date the volume limit was exceeded.
- If you exceed the volume limit at a SAP, you have three (3) calendar days to remove the excess volume of waste (including weekends and holidays)!

ECC: Remember that there is no time limit as long as the **total** volume of hazardous waste at a SAP remains at or below 55 gallons of hazardous waste and at or below one quart of acute hazardous waste.

SAP Brochure

SAP management requirements are available in the SAP Brochure, *Generator Quick Reference Guide* available from the Environmental Compliance Coordinators Program web site.

MOW: So a SAP is limited to 55 gallons of hazardous waste or one quart of acute hazardous waste, but as long as I'm under those volume limits, I can store the waste indefinitely?

ECC: Well yes, but we encourage you to have your waste picked up in a reasonable time period. Do you really want some chemical waste hanging around in your SAP for months? This also helps prevent accumulation of unknown or unidentified waste.

MOW: What about managing a 90-Day Accumulation Area?

ECC: The requirements of operating a 90-Day Accumulation Area are more stringent. Training for managing a 90-Day Accumulation Area is available through the ENV216 course: *RCRA -- Less Than 90-Day Accumulation Area.* You must have approval from your ECC **prior to** establishing a Less Than 90-day Accumulation Area.

Your ECC can help you decide which is best for your situation. However, here is a quick look at that type of hazardous waste management area . . .

90-Day Accumulation Areas

A waste storage area established to manage:

- greater than 55 gallons of hazardous waste or
- greater than one quart of acutely hazardous waste

The hazardous waste must be removed from storage to a permitted facility prior to 90 days.

ECC: A 90-Day Accumulation Area can accept waste from SAPs.

However, requirements such as annual training and records are more stringent than at SAPs. Let's have a quick look . . .

- No volume limits apply but there is a 90 day time limit at which point the waste must be removed to a RCRA-permitted facility
- There is a requirement for specific records management including **written weekly inspections**
- There is an annual training requirement (ENV216 or ENV316 and 416 Courses)
- Guidance and requirements can be found in the Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM

Lessons Learned For Waste Generators

Over the years, a number of lessons learned have emerged as a result of problems and noncompliant situations that have arisen. Selected examples of the lessons learned include:

- When a chemical lab is in transition from one lab owner to another, the Project Leader who inherits the lab must establish control over the new space, including the hazardous waste, access to the waste stored in the lab, and disposal records and activities associated with waste. Optimally, the new lab owner should negotiate with the former owner, the wastes he/she is willing to accept control over and who will pay the chargeback costs. In the past, lack of control has led

to situations where regulated waste items have been lost or disposed as normal trash.

- Insure containers of hazardous waste are properly labeled with the SNL/NM hazardous waste label. In the past, violations have accrued to containers of hazardous waste at SNL/NM which were not properly labeled. Also, labeling of hazardous wastes should be done in a manner that does not obscure other important information or labeling on the container. There have been past situations where hazardous waste labels and packaging have obscured other information including radioactive markings and safe handling information.

- Containers of hazardous waste in a satellite accumulation point (SAP) need to be kept “at or near the point of generation”. In past years, SNL/NM has been cited for hazardous waste containers that have not been kept “at or near” -- including at least two instances where containers were kept outside the building in which the waste was generated.

- Containers of hazardous waste need to be kept closed at all times except when adding or removing waste. In past years, SNL/NM has been cited for open containers of hazardous waste, including once instance where a can of waste lead solder was left open when not in use.

Managing Hazardous Waste Areas

You need to answer the questions for this module before you continue.

1. **A Satellite Accumulation Point (SAP) to temporarily store hazardous waste must be located at or near the point of waste generation and the waste kept under the control of the generator.**
    a) True
    b) False
2. **If I have larger volumes of waste (not including acutely hazardous waste), it could be necessary to establish a 90-Day Accumulation Area. Which of the following are true?**
    a) I will need ENV216 or ENV316 and 416 annually.
    b) I need to ensure that waste is moved to the permitted Hazardous Waste Management Facility (HWMF) within 90 days.
    c) I have to follow specific records requirements.
    d) I need to be prepared for written weekly inspections.
    e) All of the above are true.
3. **Hazardous waste stored at a SAP has no automatic time limit; however, the waste volume must be kept at or below 55 gallons (counting both liquid and solid wastes produced from the same process or waste stream).**
    a) True
    b) False

Module 5 Answer Key:

1. a.
2. e.
3. a.

Module 6 – Hazardous Waste Disposal Request Process

After successful completion of this module, you will be able to:

- Understand the steps to request disposal of hazardous waste.
- Complete the necessary forms to request disposal of hazardous waste.

MOW: So, I containerized my waste; labeled it; and managed it in the appropriate hazardous waste management area. Now what? How do I arrange to have my hazardous waste removed from my waste management area(s)?

ECC: At SNL/NM we use the Waste Description and Disposal Request (WDDR). The WDDR is an electronic disposal request system developed here at SNL/NM. The Hazardous Waste Management Facility (HWMF) receives your request for disposal.

After they determine that you have provided enough information to characterize, transport, and dispose of the waste, they schedule a pick-up to remove the waste to their permitted facility. Let's take a quick look at the process . . .

MOW: Wait! What is the Hazardous Waste Management Facility?

ECC: The Hazardous Waste Management Facility is one of three waste management facilities at SNL/NM:

- **The Hazardous Waste Management Facility (HWMF)**
  Stores and packages hazardous and non-regulated wastes at SNL/NM, for disposal through RCRA permitted disposal facilities
- **The Solid Waste Transfer Facility (SWTF)**
  Screens the trash, manages recycle streams, and transports solid wastes to the landfills
- **The Radioactive and Mixed Waste Management Facility (RMWMF)**
  Manages and transfers radioactive and mixed wastes at SNL/NM for disposal to permitted disposal facilities

ECC: Now, let's continue with a quick tour of the disposal request process …

Waste Description & Disposal Request (WDDR)

Request disposal of hazardous wastes by completing a WDDR**. The WDDR may NOT be used to request disposal of explosive, radioactive, or mixed waste.**

ECC: The WDDR is an electronic disposal request system.

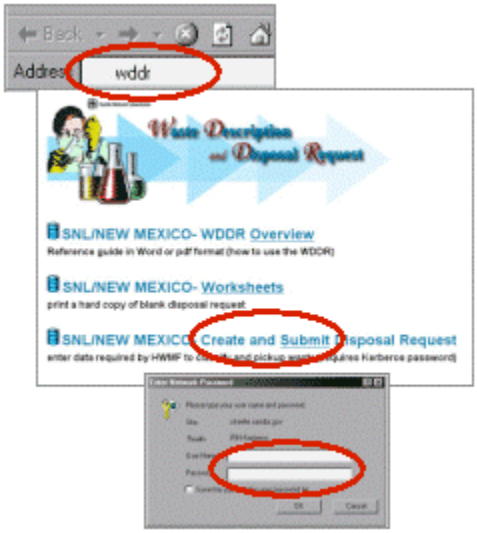
You enter information describing your wastes into the system and a pickup request is initiated.

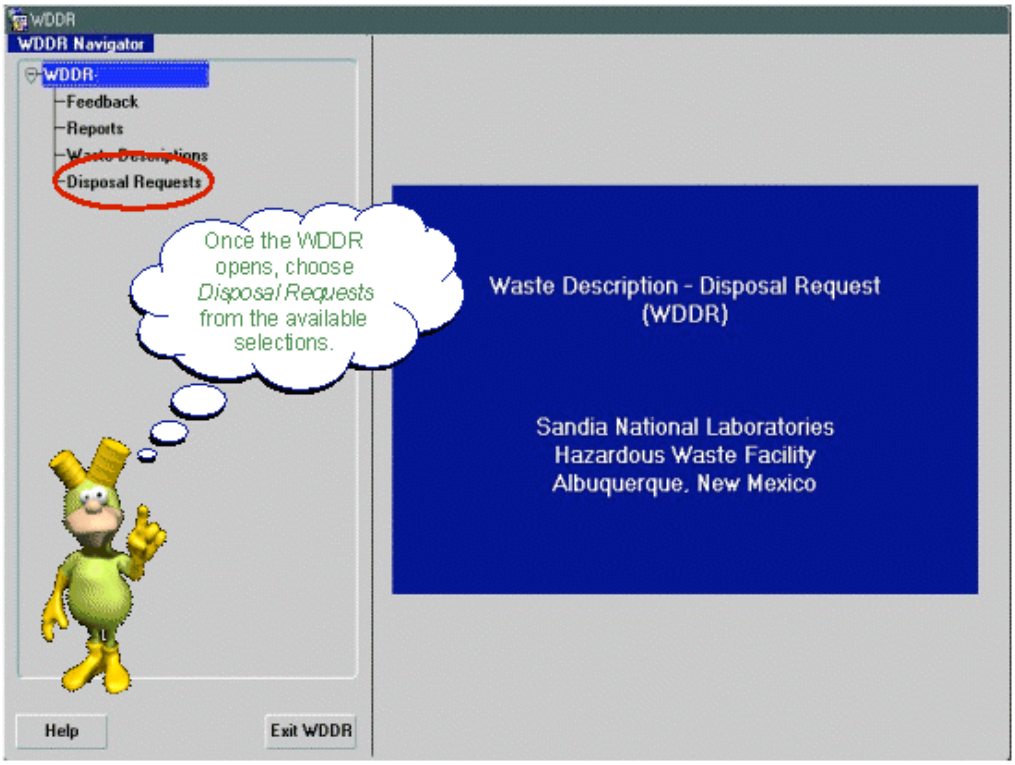
Your ECC can assist you in setting up and using the WDDR on your computer system.

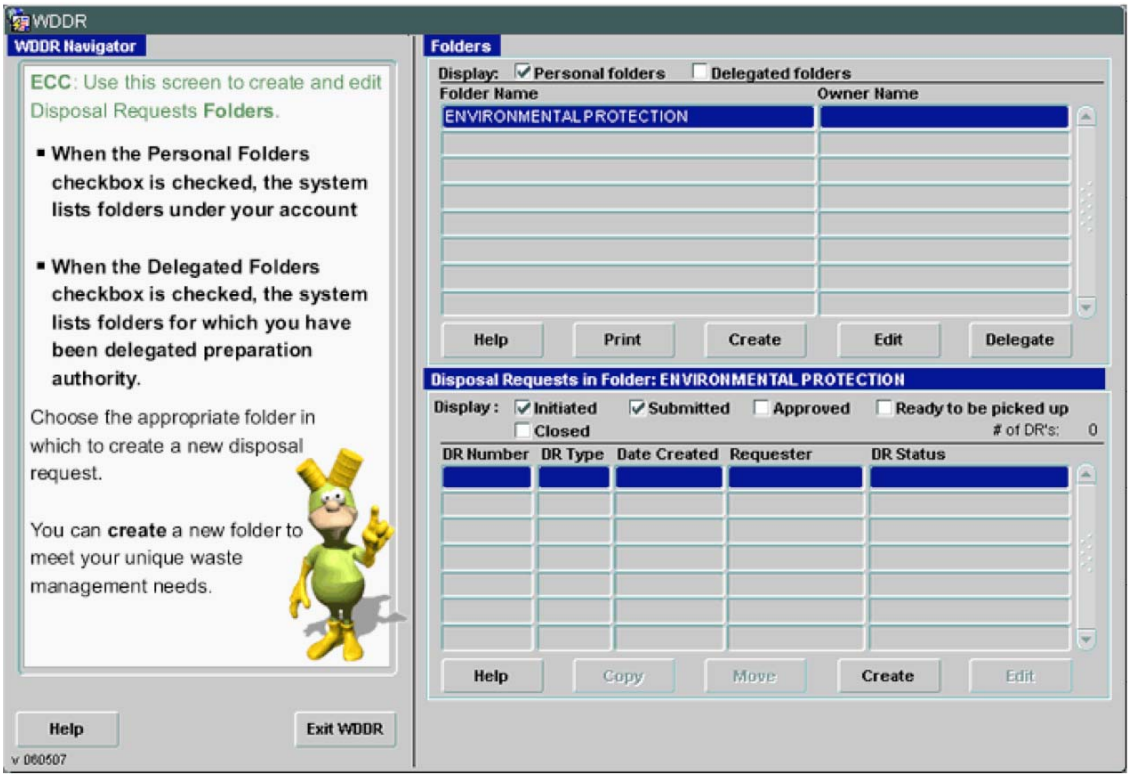
ECC: It's easy! Type *WDDR* in the address bar of your browser.

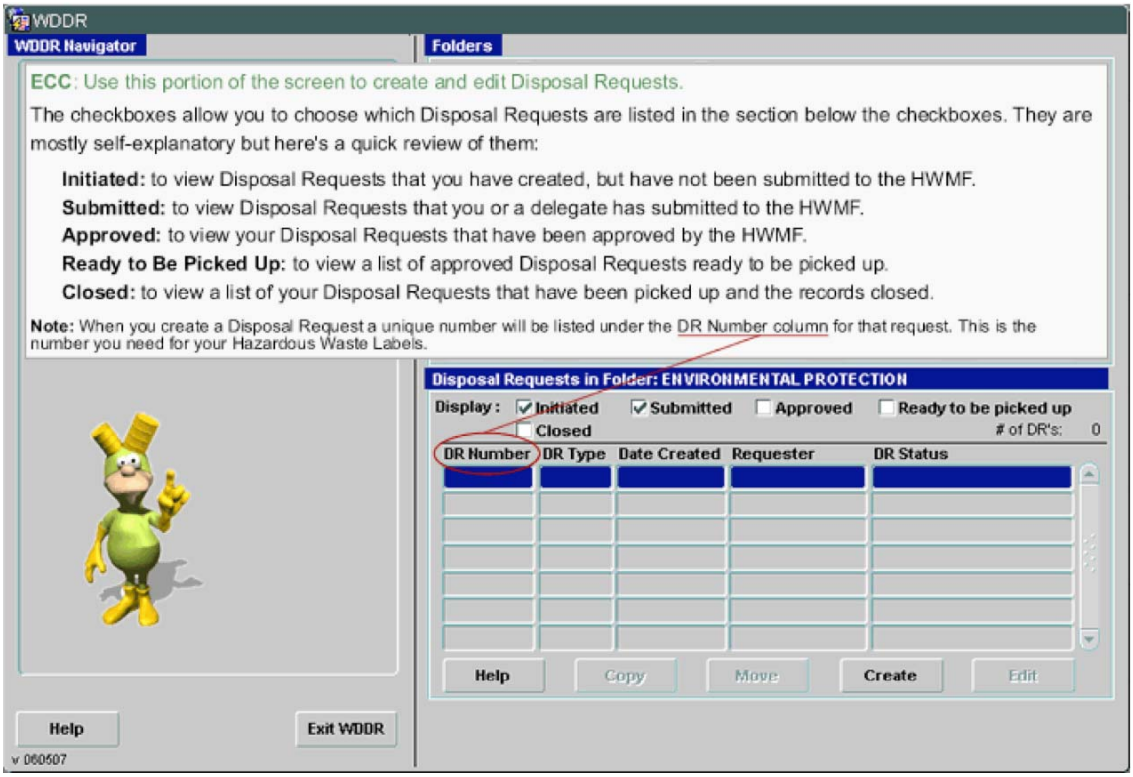
Choose *Create and Submit Disposal Request*. This will get you onto the system.

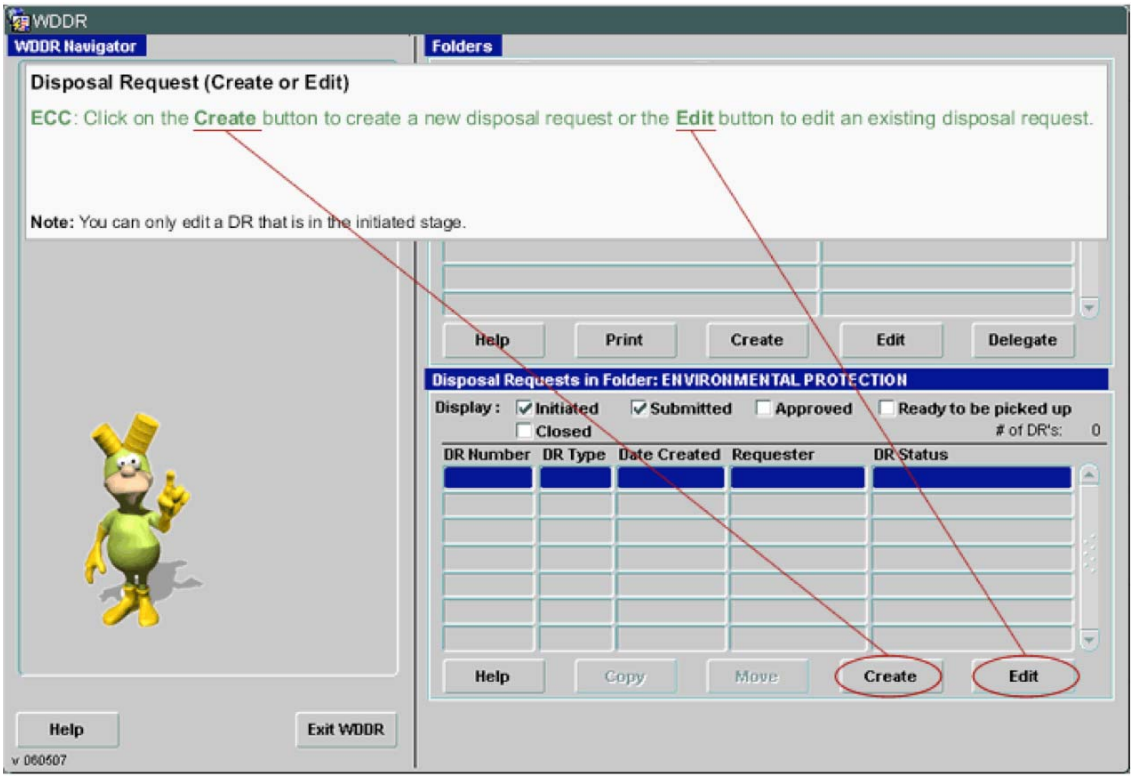
Enter your Kerberos userid and password to access the WDDR.

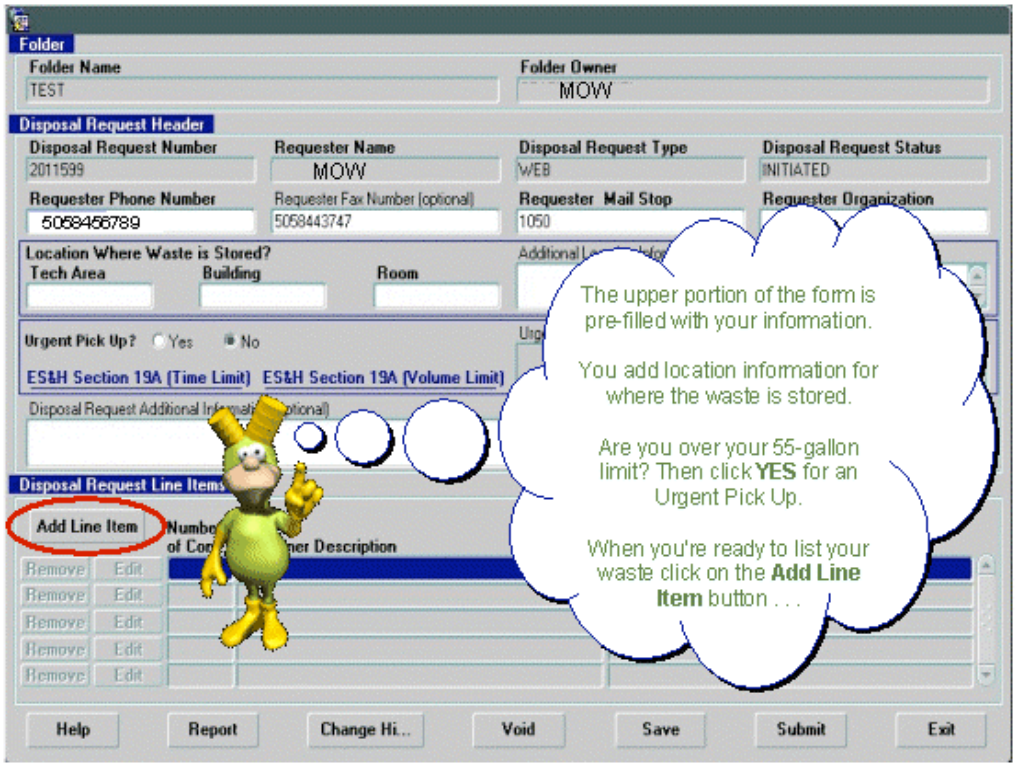


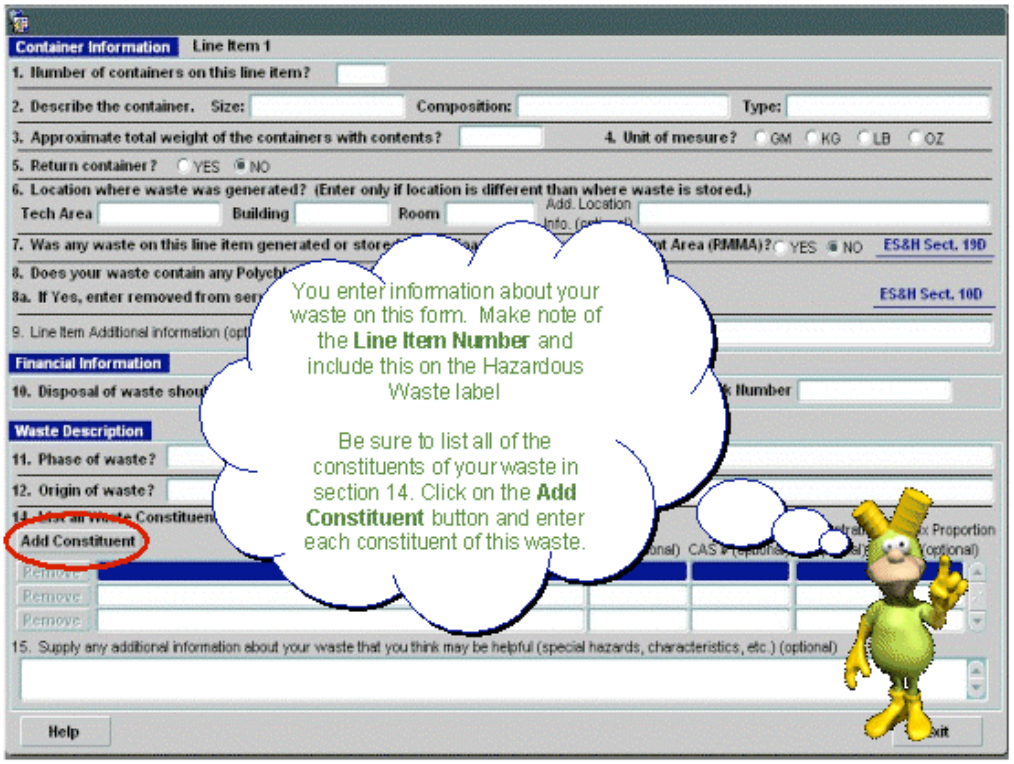

WDDR
WDDR Navigator
WDDR
Feedback
Reports
Disposal Requests
Once the WDDR opens, choose Disposal Requests from the available selections.
Waste Description - Disposal Request (WDDR)
Sandia National Laboratories
Hazardous Waste Facility
Albuquerque, New Mexico
Help
Exit WDDR

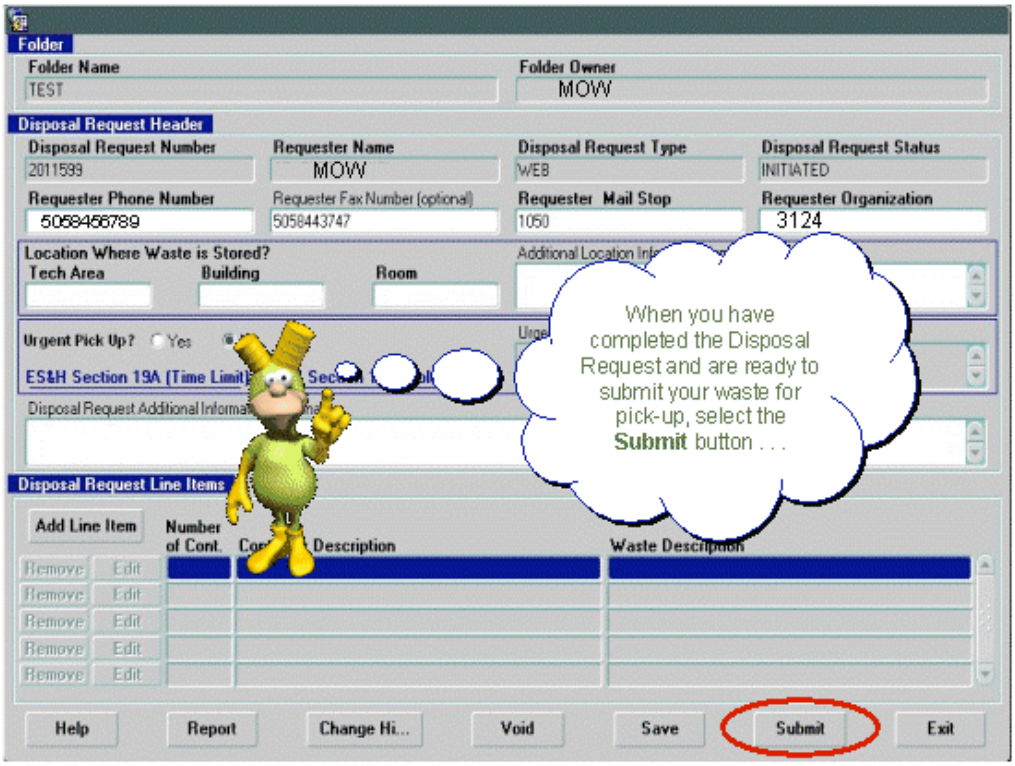

WDDR
WDDR Navigator
ECC: Use this screen to create and edit Disposal Requests Folders.
When the Personal Folders checkbox is checked, the system lists folders under your account
When the Delegated Folders checkbox is checked, the system lists folders for which you have been delegated preparation authority.
Choose the appropriate folder in which to create a new disposal request.
You can create a new folder to meet your unique waste management needs.
Help
Exit WDDR
v 060507
Folders
Display: Personal folders Delegated folders
Folder Name
Owner Name
ENVIRONMENTAL PROTECTION
Help
Print
Create
Edit
Delegate
Disposal Requests in Folder: ENVIRONMENTAL PROTECTION
Display: Initiated Submitted Approved Ready to be picked up
Closed
# of DR's: 0
DR Number
DR Type
Date Created
Requester
DR Status
Help
Copy
Move
Create
Edit

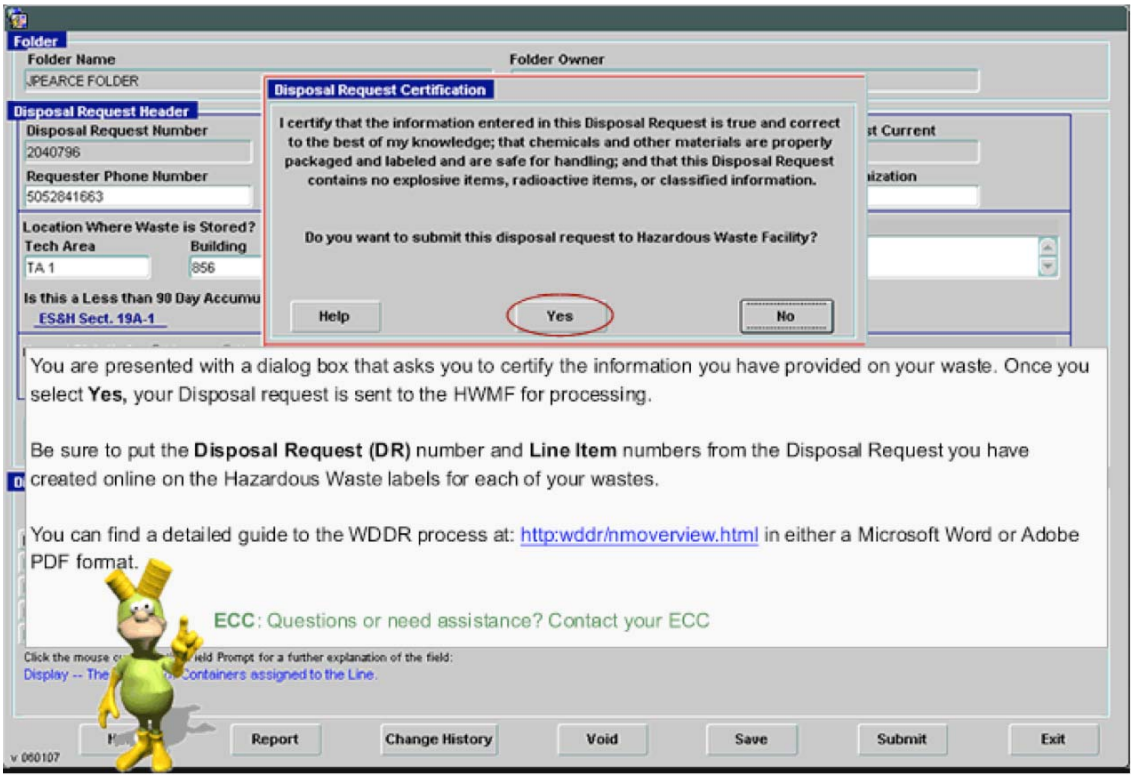

WDDR
WDDR Navigator
Folders
ECC: Use this portion of the screen to create and edit Disposal Requests.
The checkboxes allow you to choose which Disposal Requests are listed in the section below the checkboxes. They are mostly self-explanatory but here's a quick review of them:
Initiated: to view Disposal Requests that you have created, but have not been submitted to the HWMF.
Submitted: to view Disposal Requests that you or a delegate has submitted to the HWMF.
Approved: to view your Disposal Requests that have been approved by the HWMF.
Ready to Be Picked Up: to view a list of approved Disposal Requests ready to be picked up.
Closed: to view a list of your Disposal Requests that have been picked up and the records closed.
Note: When you create a Disposal Request a unique number will be listed under the DR Number column for that request. This is the number you need for your Hazardous Waste Labels.
Disposal Requests in Folder: ENVIRONMENTAL PROTECTION
Display : Initiated Submitted Approved Ready to be picked up
Closed
# of DR's: 0
DR Number DR Type Date Created Requester DR Status
Help Copy Move Create Edit
Help Exit WDDR
v 060507


WDDR
WDDR Navigator
Folders
Disposal Request (Create or Edit)
ECC: Click on the Create button to create a new disposal request or the Edit button to edit an existing disposal request.
Note: You can only edit a DR that is in the initiated stage.
Help Print Create Edit Delegate
Disposal Requests in Folder: ENVIRONMENTAL PROTECTION
Display : Initiated Submitted Approved Ready to be picked up
Closed
# of DR's: 0
DR Number DR Type Date Created Requester DR Status
Help Copy Move Create Edit
Help Exit WDDR
v 060507


Folder
Folder Name
TEST
Folder Owner
MOVV
Disposal Request Header
Disposal Request Number
2011599
Requester Name
MOVV
Disposal Request Type
WEB
Disposal Request Status
INITIATED
Requester Phone Number
5058456789
Requester Fax Number (optional)
5058443747
Requester Mail Stop
1050
Requester Organization
Location Where Waste is Stored?
Tech Area
Building
Room
Urgent Pick Up? Yes No
ES&H Section 19A (Time Limit)
ES&H Section 19A (Volume Limit)
Disposal Request Line Items
Add Line Item
Remove
Edit
Help
Report
Change Hi...
Void
Save
Submit
Exit
The upper portion of the form is pre-filled with your information.
You add location information for where the waste is stored.
Are you over your 55-gallon limit? Then click YES for an Urgent Pick Up.
When you're ready to list your waste click on the Add Line Item button . . .


Container Information
Line Item 1
1. Number of containers on this line item?
2. Describe the container. Size:
Composition:
Type:
3. Approximate total weight of the containers with contents?
4. Unit of mesure? GM KG LB OZ
5. Return container? YES NO
6. Location where waste was generated? (Enter only if location is different than where waste is stored.)
Tech Area
Building
Room
Add. Location Info.
ES&H Sect. 19D
ES&H Sect. 10D
Financial Information
Waste Description
11. Phase of waste?
12. Origin of waste?
Add Constituent
15. Supply any additional information about your waste that you think may be helpful (special hazards, characteristics, etc.) (optional)
Help
You enter information about your waste on this form. Make note of the Line Item Number and include this on the Hazardous Waste label
Be sure to list all of the constituents of your waste in section 14. Click on the Add Constituent button and enter each constituent of this waste.


Folder
Folder Name
TEST
Folder Owner
MOW
Disposal Request Header
Disposal Request Number
2011593
Requester Name
MOW
Disposal Request Type
WEB
Disposal Request Status
INITIATED
Requester Phone Number
5058456789
Requester Fax Number (optional)
5058443747
Requester Mail Stop
1050
Requester Organization
3124
Location Where Waste is Stored?
Tech Area
Building
Room
Urgent Pick Up?
Yes
ES&H Section 19A (Time Limit)
Disposal Request Additional Informa
Disposal Request Line Items
Add Line Item
Number of Cont.
Description
Waste Description
Remove
Edit
Help
Report
Change Hi...
Void
Save
Submit
Exit
When you have completed the Disposal Request and are ready to submit your waste for pick-up, select the Submit button . . .


Folder
Folder Name
JPEARCE FOLDER
Folder Owner
Disposal Request Header
Disposal Request Number
2040796
Requester Phone Number
5052841663
Location Where Waste is Stored?
Tech Area
TA 1
Building
856
Is this a Less than 90 Day Accumu
ES&H Sect. 19A-1
Disposal Request Certification
I certify that the information entered in this Disposal Request is true and correct to the best of my knowledge; that chemicals and other materials are properly packaged and labeled and are safe for handling; and that this Disposal Request contains no explosive items, radioactive items, or classified information.
Do you want to submit this disposal request to Hazardous Waste Facility?
Help
Yes
No
You are presented with a dialog box that asks you to certify the information you have provided on your waste. Once you select Yes, your Disposal request is sent to the HWMF for processing.
Be sure to put the Disposal Request (DR) number and Line Item numbers from the Disposal Request you have created online on the Hazardous Waste labels for each of your wastes.
You can find a detailed guide to the WDDR process at: http:wddr/nmoverview.html in either a Microsoft Word or Adobe PDF format.
ECC: Questions or need assistance? Contact your ECC
Report
Change History
Void
Save
Submit
Exit
v 060107

Hazardous Waste Disposal Request Process

You need to answer the questions for this module before you continue.

1. **The electronic Waste Description and Disposal Request (WDDR) form is used for requesting disposal of:**
   a) Explosive waste.
   b) Hazardous chemical waste.
   c) Radioactive waste.
   d) Mixed (hazardous and radioactive) waste.
2. **Before hazardous waste is removed from your storage area, it must be:**
   a) In a container that is in good condition and compatible with the waste.
   b) Labeled to identify the generator and the type of waste.
   c) Labeled to include the DR number and line item number (from the WDDR) on the hazardous waste label.
   d) Listed on a WDDR form and submitted.
   e) All the above.

Module 6 Answer Key:
1. b.
2. e.

Module 7 – Environmental Management System (EMS)

After successful completion of this module, you will be able to:

- Identify the elements of the SNL/NM Environmental Management System as part of the Integrated Safety Management System (ISMS).
- List the five core ISMS work process functions.
- Identify appropriate application of SNL/NM Recycle Program.
- Recognize the function of the Pollution Prevention Program.

MOW: What is an Environmental Management System (EMS)?

ECC: In simple terms, an EMS is a quality system that helps you identify and manage your environmental hazards. At SNL/NM, EMS is part of our Integrated Safety Management System (ISMS) that you are already familiar with . . .

MOW: You mentioned EMS is an element of ISMS. Can you explain how it all fits?

ECC: Sure! There are several elements supporting the EMS that help you identify and mitigate risks/hazards to get your work done safely. Your ES&H Coordinator is a part of the EMS, as are the ECC. Listed below are some of the elements that comprise the EMS that works in conjunction with ISMS.

- Primary Hazard Screening/Hazards Analysis (PHS/HA)
- National Environmental Policy Act (NEPA)
- Pollution Prevention (P2)
- ECCs
- Division ES&H Coordinators
- Center ES&H Coordinators

ES&H Policy — Corporate Policy: ESH100 Environment Safety & Health

SNL's ES&H Policy is also a part of the EMS . . .

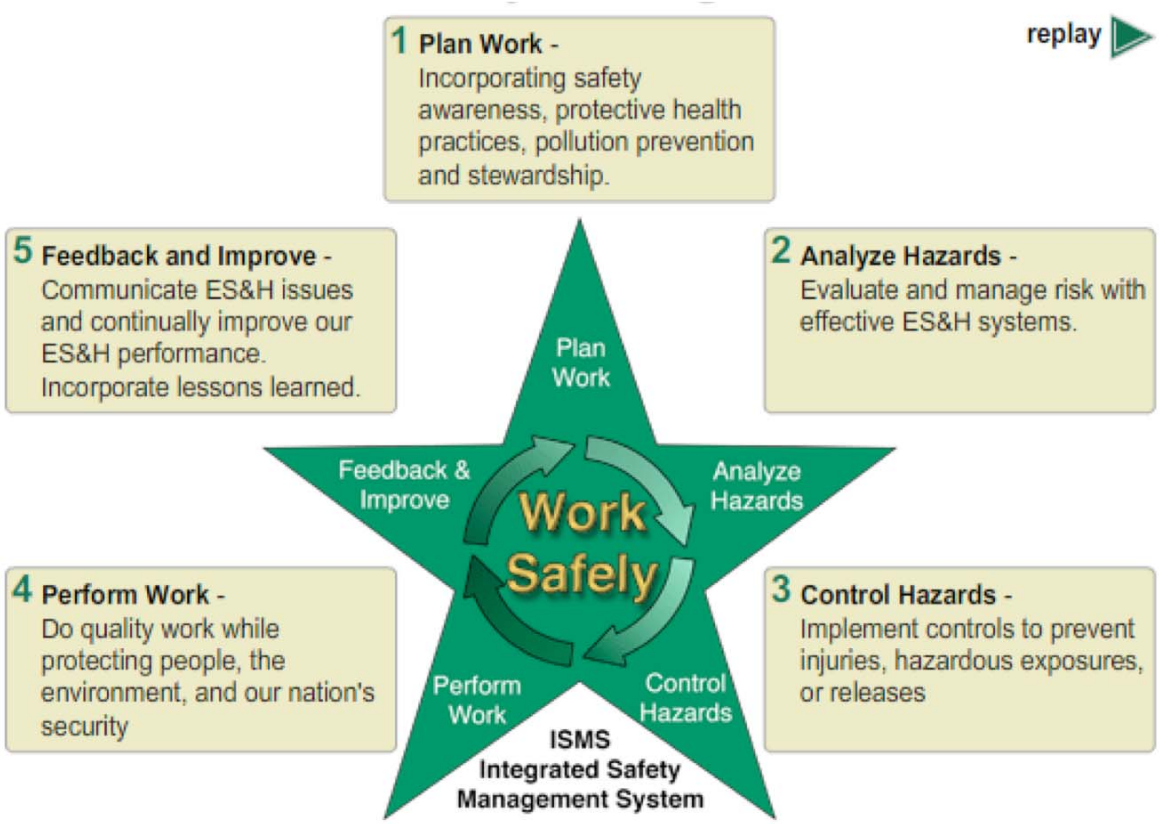
It is the policy of Sandia Corporation to protect Members of the Workforce and the public, prevent incidents, and integrate environmental stewardship and sustainability throughout the life cycle of its activities. We conserve natural resources and protect the environment.

DOE's Integrated Safety Management System (ISMS) is a key element of Sandia's Integrated Laboratory Management System (ILMS). ISMS provides the framework for managing ES&H activities and functions while integrating them into all SNL operations.

SNL's corporate ES&H program mandates compliance with all applicable laws, regulations, DOE directives included in the Prime Contract between DOE and SNL, and internal corporate policy requirements. SNL has adopted the core values of: integrity; excellence; service to the nation and each other; and teamwork. SNL strives to incorporate the five core ISMS process functions:

- **Plan Work** – incorporating safety awareness, protective health practices, pollution prevention, and stewardship
- **Analyze Hazards** – evaluate and manage risk with effective ES&H systems
- **Control Hazards** – implement controls to prevent injuries, hazardous exposures, or releases
- **Perform Work** – do quality work while protecting people, the environment, and our nation's security
- **Feedback and Improve** – communicate ES&H issues to our employees, the community, regulators, and stakeholders and improve our ES&H performance, including incorporating Lessons Learned

ISMS and the ES&H Policy work together



Pollution Prevention

Pollution Prevention is reducing or eliminating the amount or toxicity of wastes, and their proper management once generated.

This figure demonstrates the foundation of pollution prevention outlined in the Pollution Prevention Act of 1990. It is based on a hierarchy of solutions to prevent releases of pollution into the environment. The levels within this hierarchy, beginning at the top and working downward, represent the highest to lowest preferences.

- Source reduction, the highest priority, is any practice that results in the reduction of waste, energy use or resources at the source.
- Reuse means finding a way to use a material that would otherwise be waste in the same way as it was originally intended to be used without the need for additional processing. For instance, instead of throwing a piece of paper away, turn it over and write or print on the clean side.
- Recycling means to divert material from disposal by remanufacturing it in some way so that it becomes usable again. Refilling toner cartridges is a good example.
- Treatment is any process that changes the basic characteristics of waste material to make it more amenable to environmentally acceptable disposal. It is an added expense that adds no value to the material but may reduce the volume or toxicity. (**Note:** Treatment of hazardous waste is not allowed at SNL except in very limited situations.)
- Disposal is the action we wish to avoid in pollution prevention. Waste is disposed when it is assumed the material can no longer be used as a resource.

Trick Question

ECC: What is the **BEST** way to manage hazardous waste at SNL/NM?

Answer to Trick Question

ECC: Don't generate it!

MOW: Well, that's not always feasible. Some work is going to cause me to generate hazardous waste.

ECC: True. I was just trying to illustrate a point. Sometimes it is necessary to generate hazardous waste. But there is a group of folks that can help you minimize the waste volume or possibly alleviate it all together. Let me introduce you . . .

Pollution Prevention (P2)

The Pollution Prevention (P2) group can assist you in reducing or eliminating your hazardous waste generation through a Pollution Prevention Opportunity Assessment (PPOA).

P2 is based on the Pollution Prevention Act of 1990. It is a national policy that pollution should be prevented or reduced at the source, recycled in an environmentally safe manner, or as a last resort, should be disposed of in an environmentally safe manner.

MOW: What if I have something that I think should be recycled? I mean I know some of us at SNL/NM recycle aluminum cans, but shouldn't I recycle other things as well?

ECC: Sure, SNL/NM has many recycle programs available to you. Here, let's take a look . . .

Recycle Programs at SNL/NM

- **White Paper** – Place your recycle paper in blue totes, conveniently located throughout SNL/NM.
- **Chemical Exchange** – Advertise your unused chemicals to other Members of the Workforce at SNL/NM.
- **Lead Bank** – For questions concerning lead you no longer need, or if you need lead, see Chapter 10L in the ES&H Manual.
- **Used Oil** – The majority of the used oil at SNL/NM is sent for recycle.
- **Toner Cartridges** – Place used toner cartridges next to the blue recycled paper totes.
- **Metals** – (Exception – Metals subject to the DOE Metals Moratorium.)
- **Styrofoam Packet Peanuts**
- **Cardboard**

Reapplication of Excess Property

Additionally, SNL/NM is responsible for assuring that maximum use is made of all government-owned property through Property Reapplication.

Environmental Management System (EMS)

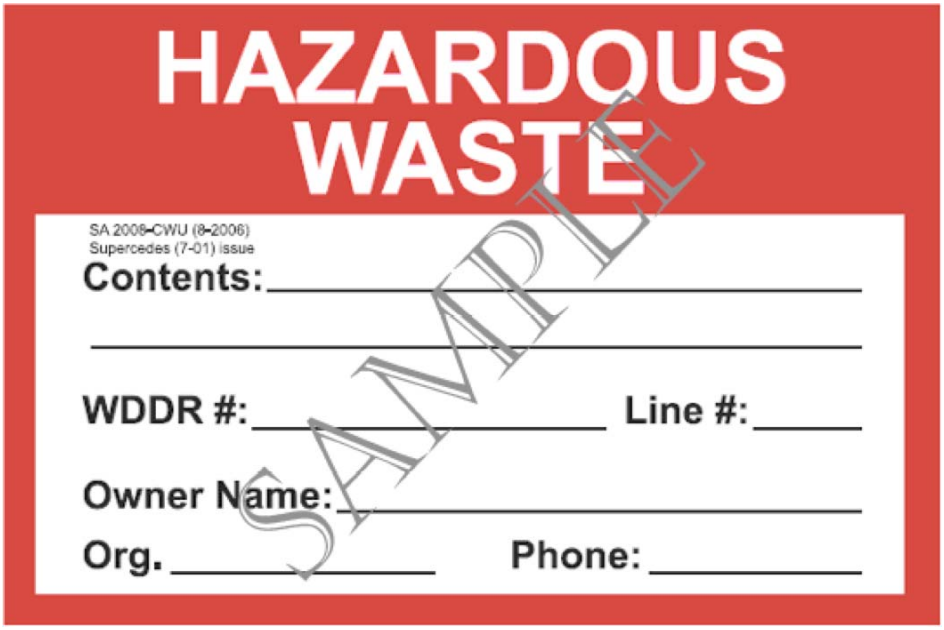
You need to answer the questions for this module before you continue.

1. **At SNL, Environmental Management System (EMS) is considered part of the Integrated Safety Management System (ISMS).**
   a) True
   b) False
2. **How do you identify and mitigate environmental risks/hazards so that you may get your work done compliantly and safely?**
   a) Plan--train on the hazards and know how to handle them.
   b) Identify the hazards in the Primary Hazard Screening/Hazards Analysis (PHS/HA) and National Environmental Policy Act (NEPA) checklist (if appropriate).
   c) Use the Sandia ISMS, which includes environmental management.
   d) All the above.

Module 7 Answer Key:
1. a.
2. d.

Glossary

Hazardous Waste Labels



Hazardous Waste Label – (JIT #699059 Large, JIT #699058 Small)

ENV112 Final Exam

Directions: Use the **Answer Sheet** at the end of this exam to record your answers.

1. **A material is considered to be "waste" if it**
   a) Can no longer be used for its intended purpose.
   b) Is declared waste.
   c) Is discarded, abandoned, or there is an element of discard or abandonment.
   d) Meets at least one of the above criteria.

2. **Which of the following is NOT considered hazardous waste at SNL?**
   a) Used vacuum pump oil that has not been profiled.
   b) Nitric acid solution (pH is less than 2.0), which can no longer be used because of contamination.
   c) A bottle of used acetone you intend to use for another purpose.
   d) A bottle of used acetone you cannot use for another purpose.

3. **Any member of the workforce or visitor who generates, stores, or requests disposal of a hazardous waste is a(n)**
   a) ES&H Coordinator.
   b) Hazardous Waste Generator.
   c) Environmental Compliance Coordinator (ECC).
   d) DOE Auditor.

4. **What resources are available to you to determine if your waste is hazardous?**
   a) Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM
   b) SNL/NM Chemical Information System
   c) Material Safety Data Sheets (MSDSs)
   d) Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM, SNL/NM Chemical Information System, MSDSs, Environmental Compliance Coordinators

5. **A generator of hazardous waste is responsible for:**
   a) Identifying hazardous waste.
   b) Properly managing hazardous waste at their Satellite Accumulation Point (SAP).
   c) Initiating disposal by submitting a disposal request to the Hazardous Waste Management Facility (HWMF).
   d) Managing hazardous waste until it is removed by HWMF personnel.
   e) All of the above.

6. **Waste generators shall place incompatible wastes in separate containers.**
   a) True
   b) False

7. **All Federal and State hazardous waste requirements that are applicable to SNL/NM waste generators are described in Corporate Procedure: ESH100.2.ENV.22 Manage Hazardous Waste at SNL/NM.**
   a) True
   b) False

8. **A container of hazardous material meets the definition of empty and may be thrown into the dumpster (trash) when**
   a) The container did not formerly contain acutely hazardous material and is not greater than five gallons in capacity.
   b) No more than 3% by weight of the total capacity remains inside.
   c) All contents have been removed using common practice.
   d) All of the above.

9. **You experience a spill of a liquid hazardous material and use several rags to sop up the liquid. You place the liquid-soaked rags into a plastic bag. Even though there is a significant amount of liquid (free liquid) in the bottom of the plastic bag, you have selected the appropriate container for this type of waste.**
   a) True
   b) False

10. **When must an appropriately completed SNL Hazardous Waste Label be affixed to a container of chemical waste?**
   a) When the container is full.
   b) When the container is submitted for disposal.
   c) When waste is first placed inside the container.
   d) When the waste volume exceeds 55 gallons.

11. **A full can of spray paint with a broken valve must be sent to the Hazardous Waste Management Facility (HWMF) because:**
   a) It can no longer be used for its intended purpose.
   b) The container is not empty.
   c) Both a and b

12. **If you exceed a volume limit, how soon must you have the excess hazardous waste removed from your Satellite Accumulation Point (SAP)?**
   a) Immediately.
   b) 3 calendar days.
   c) 6 calendar days.
   d) Within 60 days.

13. When a generator establishes a Satellite Accumulation Point (SAP),

a) The hazardous wastes must be stored at or near the point of generation (and generally within the same room where it was generated).
b) The hazardous wastes must be under control of the generator.
c) Every container must be labeled with a Hazardous Waste Label as soon as hazardous waste is placed in the container.
d) All containers must remain closed except to actively add or remove waste.
e) All of the above.

14. A 90-day Accumulation Area requires much less stringent management efforts than a Satellite Accumulation Point (SAP).

a) True
b) False

15. Before hazardous waste is removed from your storage area, the Hazardous Waste Management Facility (HWMF) must ensure that they have sufficient information to characterize, transport and dispose of the waste.

a) True
b) False

16. Mixed waste is a combination of hazardous waste and waste which is radioactive. You may use the Waste Description and Disposal Request (WDDR) to submit mixed waste for disposal.

a) True
b) False

17. Which of the following is an element of the SNL/NM Environmental Management System (EMS)?

a) National Environmental Policy Act (NEPA).
b) ES&H Policy.
c) Primary Hazard Screening/Hazards Analysis (PHS/HA).
d) Pollution Prevention (P2).
e) Environmental Compliance Coordinators (ECCs).
f) They are all elements of the EMS.

18. The five core ISMS work process functions are:

a) Plan Work; Form Team; Identify Scope; Perform Work; Improve Process.
b) Plan Work; Analyze Hazards; Control Hazards; Perform Work; Feedback & Improve.
c) Plan Work; Analyze Hazards; Evaluate Risk; Perform Work; Deliver Product.
d) Plan Work; Evaluate Risk; Determine Milestones; Perform Work; Report Results.

19. The SNL/NM Recycle Program recycles

a) White paper.
b) Chemicals (Chemical Exchange Program).
c) Used oil.
d) Toner cartridges.
e) All of the above.

20. It is both Sandia National Labs policy and national policy that pollution should be prevented or reduced at the source, recycled in an environmentally safe manner, or as a last resort, should be disposed of in an environmentally safe manner.

a) True
b) False

ENV112 Final Exam Answer Sheet

Circle the correct answer for each of the questions in the ENV112 Final Exam, then forward your Answer Sheet to the Course Manager (Bernice Lucero), by fax: 505-844-2748 or by mail: MS 0653 for scoring and course completion credit.

SNL ID	
Full Name (Print)	
Org/MS	
Project/Task #	
Telephone No.	
Date	

1. a b c d
2. a b c d
3. a b c d
4. a b c d
5. a b c d e
6. a b
7. a b
8. a b c d
9. a b
10. a b c d
11. a b c
12. a b c d
13. a b c d e
14. a b
15. a b
16. a b
17. a b c d e f
18. a b c d
19. a b c d e
20. a b

ENV112 Feedback Form

Customer feedback is important to us. Please complete the evaluation form below and forward it to Bernice Lucero, 844-8543, MS 0653, fax number 844-2748.

Rate on a scale of 1- 5 (with 1= poor and 5 =excellent):

- The ease of using of this learning tool and/or test? 1 2 3 4 5
- The organization of information presented? 1 2 3 4 5
- The amount of information presented? 1 2 3 4 5
- The usefulness of the information presented? 1 2 3 4 5
- Your level of knowledge related to this topic BEFORE using this learning tool and/or test? 1 2 3 4 5
- Your level of knowledge related to this topic AFTER using this learning tool and/or test? 1 2 3 4 5
- The overall quality of this learning tool and/or test? 1 2 3 4 5

Fill in the blanks:

- What was most valuable about this learning tool or test?
  _____
  _____
  _____
  _____
- What information needs to be corrected, inserted, removed, or updated?
  _____
  _____
  _____
  _____
- What could be done to improve or enhance this learning tool or test?
  _____
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